

Optimum intakes of vitamins

During recent years the effort has been made to estimate the optimum intakes of vitamins. The curve expressing wellbeing as a function of the intake of a vitamin is expected to have a rather flat top, and the optimum intake depends on the genetic constitution of the person and on the state of his health. For a person in ordinary

health the optimum intake of vitamin C may be 100 or 200 times the RDA, that for the B vitamins ^{and vitamin E}, about 25 times the RDA, and that for vitamin A about 10 times the RDA. Evidence supporting the high values of the optimum intake of vitamin C is discussed by Stone¹² and by Pauling^{3, 14}.

The idea that the amounts of vitamins provided by an

are adequate
ordinary good diets seems
to be based on two arguments.
One is that people on a poor
diet show manifestations
of deficiency diseases that
disappear when the diet is
improved. The fallacy in
this argument is that the
health of the control
population, receiving a
good diet, may be
improved further by
~~the~~ increased intakes of the

vitamins; that is, the intakes provided by an ordinary good diet are adequate for ordinary health but not for the best of health. The other argument is that the plants ~~contain~~ that are the source of the vitamins-containing foods are similar in their biochemistry to human beings, and that accordingly the amounts of vitamins

that they manufacture, which are adequate for them, are also adequate for human beings. One of the fallacies in this argument is that human beings require vitamin C for the synthesis of the principal structural macromolecule of the human body, the protein collagen, whereas plants use a carbohydrate, cellulose, as their principal structural

macromolecule, and hence have a smaller need for vitamin C. Another fallacy^{13,15} is that an organism that synthesizes a vital substance ~~does not~~ synthesizes a somewhat smaller daily amount than the optimum, because to synthesize the optimum amount would require supporting the burden of additional synthetic

~~the~~ machinery, with only a smaller compensation.

The Food and Nutrition Board recognizes that the RDAs do not apply to persons with vitamin-related genetic diseases. ~~abnormalities~~. More than 100 of these diseases are known, most of them with strikingly serious manifestations. It is estimated that many thousands of less serious vitamin-related abnormalities occur, with nearly every person bearing one or more. The

biochemical individuality
discussed by Roger J.
Williams^{15, 16, 17} may arise
mainly in this way. Much of
the improvement in health
resulting from optimum
nutrition may result from
control of minor genetic
defects.

Vitamin B₆s and the cerebral

tunnel syndrome

Either a low intake of vitamin B₆s (pyridoxine, pyridoxal, pyridoxamine) or the administration of an antagonist (deoxyribosine) leads to serious problems - convulsions, depression and confusion, dermatitis, stomatitis, and cheilosis. Pyridoxal phosphate and pyridoxamine are coenzymes for many ~~of the~~ enzymes ^{including those} for amino-acid metabolism, and the

effects of deprivation are attributed to the decreased functioning of the enzymes. The fact that ~~the~~ ordinary health is restored by administration of pyridoxine in amounts ~~not~~ not much greater than the RDA (2.2 mg full day for an adult male) has given rise to the belief that the various enzyme systems dependent on B-6 function at nearly their maximum level ~~that~~ in persons receiving the

RDA intake of the vitamin.

Recent work by John M. Ellis, Karl Folkers and their collaborators has shown that this conclusion is not justified.

In his practice in a small Texas community Ellis discovered that an increased intake of pyridoxine ~~■~~ helped to control rheumatism, edematous conditions, carpal tunnel syndrome, menopausal arthritis, clinical disturbances following the use of

anticonvulsatory pills, and some other problems^{18, 19}.

The doses used were usually between 50 and 300 mg per day. He and Folkers, co-authors of a treatise on vitamins²⁰, found that many subjects with the ordinary intake of B₆, had ~~an~~^{an} activity of the B₆-dependent enzyme EGOT (erythrocyte glutamic oxaloacetic transferase) far lower than that achieved with a high

B₆ intake. It was shown in a double-blind controlled-trial with patients with carpal tunnel syndrome that the administration of 100 mg of pyridoxine per day, about 50 times the RDA, led to control of the disease, whereas administration of a placebo did not.²¹ The mechanism of action may involve the shrinking of the synovial membranes adjacent to the nerve. The authors conclude that clinical

improvement of the syndrome
may with pyridoxine therapy
may frequently obviate hand
surgery, and mention that
carpal tunnel syndrome is
often associated with rheumatoid
arthritis, obesity, myxedema,
diabetes, pregnancy, and
rheumatoid conditions such
as "tennis elbow", Dupuytren
contracture, de Quervain disease,
"trigger fingers", bursitis, and
periarthritis of the shoulder.

These conditions are so common as to suggest that nearly everyone would benefit by the orthomolecular intake of this vitamin.

Vitamin C and cancer

Vitamins and cardio-
vascular disease

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